

Before the
FEDERAL COMMUNICATIONS COMMISSION
FCC 96-8

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In the Matter of)

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Amendment of Parts 2 and 15 of the)
Commission's Rules Regarding Spread)
Spectrum Transmitters)

ET Docket No. 96-8
RM-8435, RM-8608, RM-8609

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Reply Comments of

ADTRAN

ADTRAN respectfully submits these Reply Comments in response to the Commission's Notice of Proposed Rulemaking (NPRM), ET Docket No. 96-8, released February 5, 1996.

1. RF Hazards - Comments

Regarding the RF hazards associated with spread spectrum point-to-point links employing high-gain antennas, we feel that **Apple Computer** said it best: that transmitter output power rather than field strength is the true indicator of an RF hazard. We agree that the fields associated with handheld cellular phones, which were exonerated as a biological hazard in a recent court case, are much stronger than the fields associated with spread spectrum transmitters operating through high-gain parabolic antennas. Given the relatively low exposure level that is possible from point-to-point spread spectrum systems, we feel that a warning sign placed near the antenna and warnings incorporated into installation/user manuals would be an appropriate and sufficient measure to insure the public safety.

2. Warnings Re ISM Bands - Oppose

ADTRAN vehemently opposes the suggestion of **Fusion Systems Corporation** that warnings be incorporated into the Rules regarding the reliability and viability of spread spectrum radio equipment. ADTRAN recognizes that its products are sharing a band with ISM equipment and other users, and we provide frequency agility and path redundancy options to avoid the

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effects of in-band interference. We also trust that **Fusion Systems** and **Fusion Lighting** are doing all they can to shield and contain their own RF radiation, and that the microwave energy produced by their magnetrons is, in the majority, used to produce light rather than radiating uselessly into free space. IEEE C95.1-1991 RF hazards limits no doubt apply to Fusion's equipment.

3. Linkage to LMS Proceedings - Oppose

ADTRAN has read the comments of **Metricom**, **Lucent Technologies**, and the **Telecommunications Industry Association** with respect to Paragraph 34 of the NPRM. This paragraph regards the linking of changes to the LMS rules to the spread spectrum rules for 915 MHz systems. There is an implication that restrictive spread spectrum provisions could be enacted as a result of the LMS proceedings without further opportunity for notice and comment. An unstable regulatory environment is very detrimental to the interests of all of us who manufacture equipment and who spend years developing what we bring to market. We understand and appreciate the need to fine tune the spread spectrum rule as the Commission is now doing. We ask the Commission to avoid altering the LMS rules in ways that might require a further, complementary NPRM for the spread spectrum rules.

4. Use of Alternative Antennas - Comments

ADTRAN requests that Appendix B paragraph 15.204(d) contain the professional installation exclusion of the current §15.203. ADTRAN joins the **American Petroleum Institute** and **Cushcraft** as we reiterate our earlier position that the use of virtually identical antennas from different manufacturers should be approved as Class I or Class II permissive changes (under §2.1043) in professionally-installed point-to-point spread spectrum radio installations that use high-gain antennas, as is currently practiced according to §15.203. This equipment is not offered for sale to the general public, and we as manufacturer fully recognize our responsibility for compliance of our radio/cable/antenna combinations. Our installation manuals make clear to our customers their own responsibility in ensuring that our equipment is operated in a compliant manner.

5. High-Gain Antennas at 2450, 5800 MHz - Comments

In its earlier Comments, ADTRAN expressed support for the Commission's 3-for-1 transmitter power rule for 5800 MHz point-to-point systems. We still feel that this is a generous provision, granting needed relief from previously imposed restrictions. We still believe that the public interest would be served by retaining the current +6 dBW maximum EIRP at 915 MHz and 2450 MHz as these bands are fast being dominated by cordless phones and wireless LANs, respectively. Relieving the antenna gain restrictions at 5800 MHz encourages migration of point-to-point systems to that band, and would seem to be in the best interests of all parties. ADTRAN continues to support the antenna beam symmetry provision discussed in paragraph 17 of the NPRM.

6. Short-Duration Transmitters - Oppose

ADTRAN has read the comments of **Alliant Systems, Itron, Master Lock and RAMAR Ltd.** regarding short duration systems masquerading as frequency hoppers. While many of the commenting parties were silent with respect to one-hoppers and other short-duration transmitters sharing the spread spectrum bands, ADTRAN continues to oppose these non-compliant systems. We believe they could seriously disrupt the communications of systems that are compliant with the longstanding, current rules, and that these short-duration systems should not be permitted.

7. Adaptive Hopsets for Frequency Hoppers in All Three Bands - Support

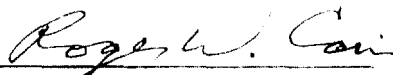
There is a compound effect working when a frequency hopper lands on a channel that is occupied by another system and is jammed: 1) In many cases, the hopper has to transmit anyway to meet the required minimum number of hopping channels, possibly jamming the other system; 2) the hopper's information doesn't get through, so it must now go to another channel and attempt to retransmit the same information; 3) meanwhile, data is backing up in the hoppers data buffer, which must be transmitted still later. Allowing frequency hoppers to drop inoperative channels and to adapt their hopsets to use only channels that are operational not only minimizes interference to other systems, it minimizes the length of time that the hopper must occupy any channel. ADTRAN believes that if a frequency hopper detects consistent interference or

blockage on a given channel or group of channels, it should be permitted to: 1) drop the jammed channels from its hopset; 2) reorder its hopset so as to avoid periodic, non-continuous interference; 3) adjust its timing so as to avoid periodic, non-continuous interference. This should be permitted in all three bands, and should be permitted even in the case where dropping one or more channels from the hopset would cause a frequency hopper to fall below the applicable minimum number of hopping channels for that band (i.e. less than 25 hops under the proposed new rules for 915 MHz, or less than 75 hops in the 2450 and 5800 MHz bands). This is beneficial to all users of the band: hoppers, direct sequence systems, and non-spread spectrum systems as well.

Conclusion

ADTRAN applauds the Commission's efforts to clarify the Rules regarding spread spectrum systems and to codify the associated measurement procedures. Reading through the comments of the 45 respondents, it is easy to visualize the growth that has taken place in the spread spectrum industry - most of it within the last six years. With the Commission's support and encouragement, that growth can and will continue well into the next millennium. With appreciation for the difficulty of the task at hand, ADTRAN supports the Commission's proposals with consideration for the points noted above.

Respectfully submitted,
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